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Patentanmeldung Nr. Patent application No. Demande de brevet n°

03101765.0 ✓

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A lamp comprising an envelope portion and a cap portion

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A lamp comprising an envelope portion and a cap portion

The invention is related to a lamp comprising an envelope portion and a cap portion, the envelope portion having a pinch part provided with two parallel lead-in conductor wires extending outwardly beyond said pinch part, the cap portion having two contact members for contacting corresponding electrical contacts of a lampholder, whereby each conductor wire is connected to a corresponding contact member of the cap portion.

5 The lamp can be a filament lamp such as a halogen lamp or any other type of lamp comprising an envelope portion and a cap portion. Apart from the two lead-in conductor wires there can be a third lead-in conductor wire and a corresponding third contact member, as is the case with certain types of lamps.

10 The envelope of a lamp can be made of quartz glass or another transparent material and enwraps the light emitting element or elements of the lamp. Two (or more) conductor wires for transporting electrical power to said light emitting element are embedded in the pinch part of the envelope and are extending outside said pinch part. The cap portion of the lamp is mainly made of insulating material, for example ceramic material, and is provided 15 with metal contact members to which the conductor wires are connected by a soldering or welding operation.

An adequate fixation between the envelope portion and the cap portion of the lamp can be achieved in different manners. For many applications, notably in case the emitting light is reflected by a reflector, a correct positioning of the envelope portion with 20 respect to the cap portion is important. In any case the fixation must be reliable.

A usual way of fixation of the envelope portion of a lamp relative to the cap portion of a lamp is the application of cement as bonding material. However, cement has some disadvantages such as vulnerability for moisture and it is not very constant in quality. Furthermore, cement causes contamination in the lamp manufacturing.

25 The object of the invention is to provide a reliable and simple fixation between the envelope portion and the cap portion of a lamp.

In order to accomplish that objective, flat surfaces are present at both sides of the pinch part, said surfaces being parallel to the plane through said conductor wires, and clamping elements of the cap portion abut against said surfaces. Thereby the envelope

portion is fixed in its position relative to the cap portion by the conductor wires at the one hand and by the clamping elements at the other hand. In practice this combination of fixation means has turned out to be effective.

5 In one preferred embodiment the two contact members of the cap portion are outwardly extending tube-like members, i.e. hollow pins, through which the conductor wires extend. Each conductor wire can be soldered or welded to the corresponding tube-like member at the end of it.

10 Preferably, the pinch part has an I-shaped cross section and the flat surfaces are located in the central part of said I-shape. Such cross section provides for a solid and rigid pinch part being suited for carrying the remainder of the envelope portion of the lamp. In one preferred embodiment the clamping elements are metal spring elements, which can be affixed to the cap portion of the lamp. When the spring elements are applied, they will undergo an elastic deformation, so that the pinch of the envelope portion is clamped between the spring elements by spring force.

15 Preferably, the metal spring elements can be applied when the envelope portion and the cap portion are fixed in a predetermined position relative to each other, whereby the spring elements undergo a plastic deformation. Due to the plastic deformation it is ensured that the spring elements push against the flat surface of the pinch part with a predetermined force, independent of the position of the pinch part relative to the cap portion.

20 In one preferred embodiment the clamping element is a metal strip-like part surrounding a protrusion of the cap portion, so that it is fixed to said protrusion, whereby a part of the strip is located at a distance from the protrusion, which part abuts against said flat surface of the pinch part of the envelope portion. Said part of the strip can be curved in an outwardly extending loop.

25 The invention furthermore relates to a method for manufacturing a lamp, whereby an envelope portion is connected to a cap portion, the envelope portion having a pinch part provided with two parallel lead-in conductor wires extending outwardly beyond said pinch part, and the cap portion having two contact members for contacting corresponding electrical contacts of a lampholder, whereby each conductor wire is connected to a corresponding contact member of the cap portion, whereby, when the envelope portion and the cap portion are kept in a predetermined position relative to each other, the conductor wires are soldered or welded with the contact members, and clamping elements are attached to the cap portion, which clamping elements abut against flat surfaces present at both sides of the pinch part, said surfaces being parallel to the plane through said conductor wires.

The invention will now be explained by means of a description of an embodiment of a lamp, whereby reference is made to a drawing, in which:

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Fig. 1 is a perspective view of the embodiment;

Fig. 2 is a side view of the embodiment;

Fig. 3 is a sectional view along the line III-III in fig. 2; and

Fig. 4 and 5 are views of a clamping element;

which figs. are merely schematic representations of the embodiment

10

Fig. 1 shows the lamp comprising an envelope portion 1 and a cap portion 2.

The envelope portion 1 is made of quartz glass and comprises a transparent envelope 3

enwrapping the light emitting element of the lamp. The envelope portion 1 furthermore

15 comprises a pinch part 4 having an I-shaped cross section and being engaged by the cap portion 2 of the lamp.

The cap portion 2 is mainly made of ceramic material and comprises two metal contact members 5, each being a hollow metal pin. These contact members 5 contact corresponding contacts of a lampholder when the lamp is fitted in that lampholder. The cap portion 2 furthermore comprises two protrusions 6 located at both sides of the pinch part 4 and extending from the main part 7 of the cap portion 2. In fig. 1 only one protrusion 6 is visible. Each protrusion 6 is surrounded by a metal clamping element 8. The two clamping elements 8 abut against flat surfaces at both sides of the pinch part 4, thereby clamping the pinch part 4.

25

Fig. 2 is a side view of the lamp, whereby a portion of the cap portion 2 is removed to show one contact member 5 in a sectional view. The sectional view shows the cap portion 2 in the plane through the two contact members 5.

The contact member 5 consists of a metal hollow tube 9 which is fixed in a bore in the main part 7 of the cap portion 2. As shown in the sectional part of fig. 2, the in-
30 lead conductor wire 10 is embedded in the pinch part 4 of the envelope portion 1. The part of conductor wire 10 extending outside that pinch part 4 is located inside the tube 9. The conductor wire 10 is soldered or welded with tube 9 at the end 11 of said tube 9, which connection is part of the fixation means between the envelope portion 1 and the cap portion 2

of the lamp. The two clamping elements 8 are the other part of said fixation means. Fig. 2 shows only one clamping element 8, but fig. 3 shows both clamping elements 8.

Fig. 3 is a sectional view, as indicated in fig. 2, showing the pinch part 4 of the envelope portion 1 in cross section and showing cap portion 2 in top view. Pinch part 4 has an I-shaped cross section and surrounds the two lead-in conductor wires 10. The central part 13 of the I-shape is provided with a flat surface 14 at both sides of it.

As shown in fig. 3, each clamping element 8 surrounds a protrusion 6 of the cap portion 2. Clamping element 8 is a metal strip-like part and the ends of the strip are welded together, indicated with 15. Another part of the strip is curved in such a manner that it forms a loop 16 at a distance from the surface of the protrusion 6. The loops 16 of the two clamping elements 8 abut against the flat surfaces 14 at both sides of the pinch part 4, so that the pinch part 4 is clamped between the loops 16. By this camping action, in combination with the connection through the two conductor wires 10, there is achieved an effective fixation of the envelope portion 1 with the cap portion 2 of the lamp.

Fig. 4 shows the clamping element 8 before it is attached to the cap portion 2 of the lamp and fig. 5 shows the clamping element 8 after it is attached. The clamping element 8 is applied as follows. In the shape as shown in fig. 4, the clamping element 8 is placed around protrusion 6 of the cap portion 2. Then the clamping element 8 is brought in the shape as shown in fig. 5. Thereby it clamps around protrusion 6 so that it is fixed to the protrusion 6. Furthermore, the loop 16 moves further outwardly, i.e. away from the protrusion 6, so that it abuts against the surface 14 of pinch part 4, whereby the metal material of the loop 16 will deform, resulting in a substantial pressure force between the clamping element 8 and the surface 14. Thereby the clamping element 8 functions as a spring element. Preferably, the deformation of loop 16 is not limited to elastic deformation, but includes also plastic deformation. Such plastic deformation ensures that the maximum pressure force is present and furthermore that the pressure forces at both sides of the pinch part 4 are equal.

After the clamping element 8 is brought in its final shape as shown in fig. 5, the ends of it are welded together by a spotwelding operation as indicated with 15.

The embodiment of the lamp as described is merely an example; a great many other embodiments are possible, including other kinds of lamps.

CLAIMS:

1. A lamp comprising an envelope portion and a cap portion, the envelope portion having a pinch part provided with two parallel lead-in conductor wires extending outwardly beyond said pinch part, the cap portion having two contact members for contacting corresponding electrical contacts of a lampholder, whereby each conductor wire is connected to a corresponding contact member of the cap portion, characterized in that two flat surfaces are present at both sides of the pinch part, said surfaces being parallel to the plane through said conductor wires, and in that clamping elements of the cap portion abut against said surfaces.
- 5 2. A lamp as claimed in claim 1, characterized in that the two contact members of the cap portion are outwardly extending tube-like members.
- 10 3. A lamp as claimed in any one of the preceding claims, characterized in that the pinch part has an I-shaped cross section and in that the flat surfaces are located in the central part of said I-shape.
- 15 4. A lamp as claimed in any one of the preceding claims, characterized in that the clamping elements are metal spring elements.
- 20 5. A lamp as claimed in claim 4, characterized in that the metal spring elements are applied when the envelope portion and the cap portion are fixed in a predetermined position relative to each other, whereby the spring elements undergo a plastic deformation.
- 25 6. A lamp as claimed in any one of the preceding claims, characterized in that the clamping element is a metal strip-like part surrounding a protrusion of the cap portion, so that it is fixed to said protrusion, whereby a part of the strip is located at a distance from the protrusion, which part abuts against said flat surface of the pinch part of the envelope portion.

7. A method for manufacturing a lamp, whereby an envelope portion is connected to a cap portion, the envelope portion having a pinch part provided with two parallel lead-in conductor wires extending outwardly beyond said pinch part, and the cap portion having two contact members for contacting corresponding electrical contacts of a
5 lampholder, whereby each conductor wire is connected to a corresponding contact member of the cap portion, characterized in that, when the envelope portion and the cap portion are fixed in a predetermined position relative to each other, the conductor wires are soldered or welded with the contact members, and two clamping elements are attached to the cap portion, which two clamping elements abut against two flat surfaces present at both sides of the pinch part,
10 said surfaces being parallel to the plane through said conductor wires.

8. A method as claimed in claim 7, characterized in that the clamping elements are metal spring elements and in that the metal spring elements undergo a plastic deformation when they are attached to the cap portion of the lamp.

- 15 9. A method as claimed in claim 7 or 8, characterized in that the clamping element is a metal strip-like part, whereby the ends of said strip-like part are welded together when the strip-like part surrounds a protrusion of the cap portion, so that it is fixed to said protrusion, whereby a part of the strip is located at a distance from the protrusion, which part
20 abuts against said flat surface of the pinch part of the envelope portion.

ABSTRACT:

A lamp comprising an envelope portion (1) and a cap portion (2). The envelope portion (1) having a pinch part (4) provided with two parallel lead-in conductor wires (10) extending outwardly beyond said pinch part (4). The cap portion (2) having two contact members (5) for contacting corresponding electrical contacts of a lampholder. Each 5 conductor wire (10) is connected to a corresponding contact member (5) of the cap portion (2). Two flat surfaces (14) are present at both sides of the pinch part (4), said surfaces (14) being parallel to the plane through said conductor wires (10). Clamping elements (8) of the cap portion (2) abut against said surfaces (14) to provide for a fixation of the envelope portion (1) relative to the cap portion (2).

10

Fig. 3

1/3

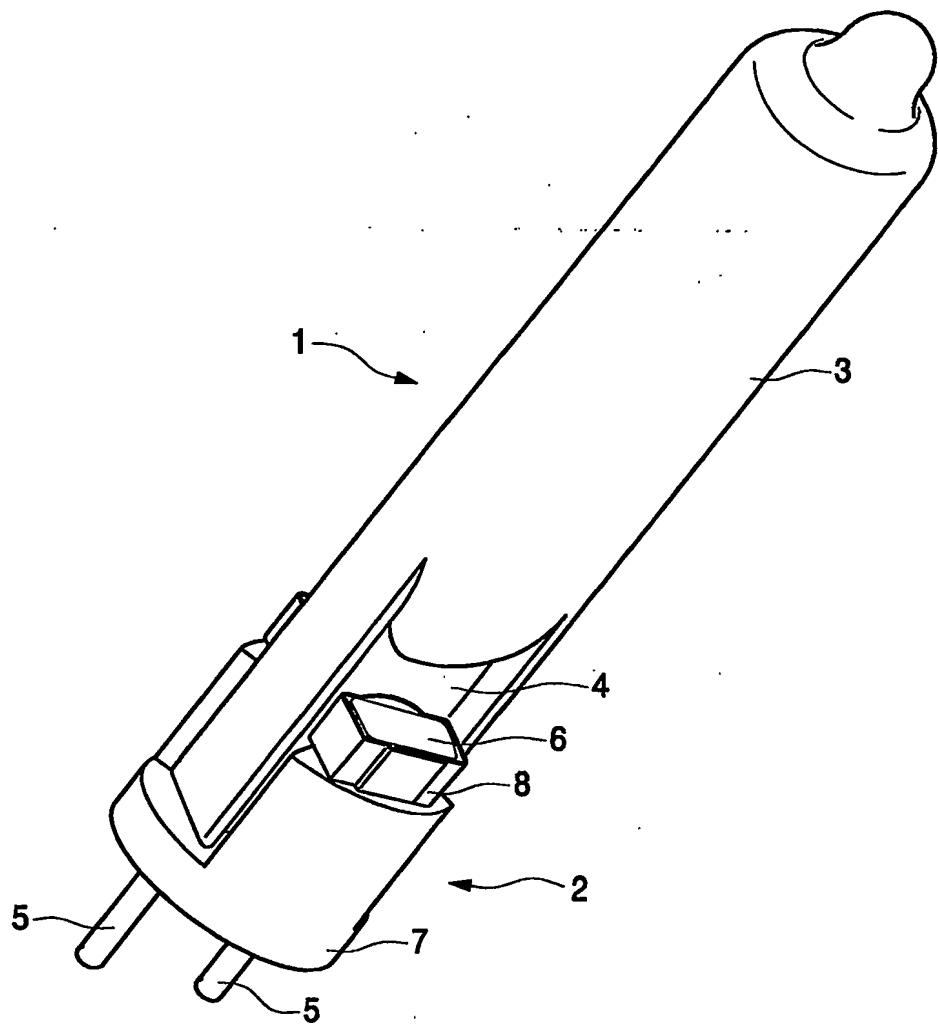


Fig.1

2/3

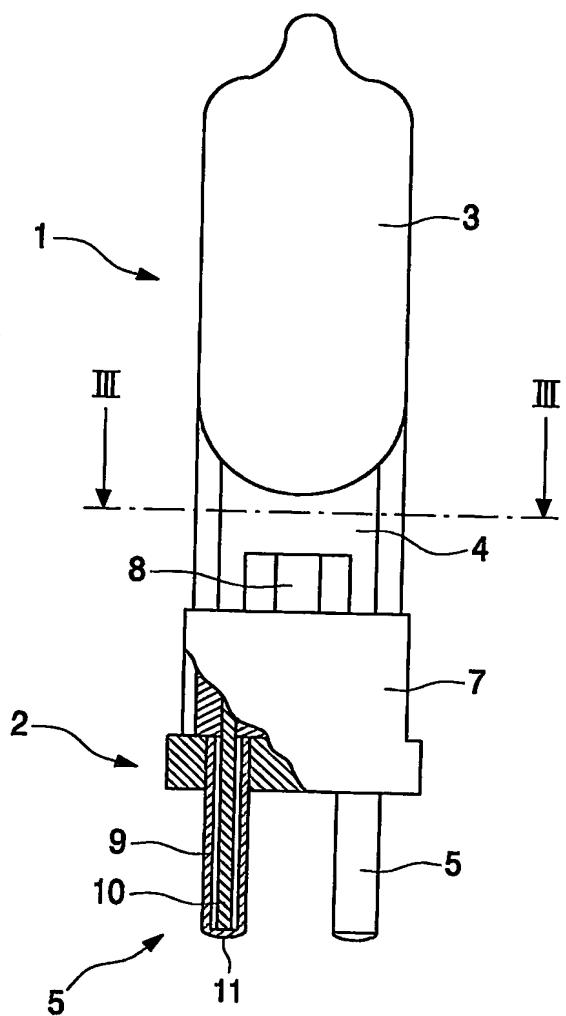


Fig.2

3/3

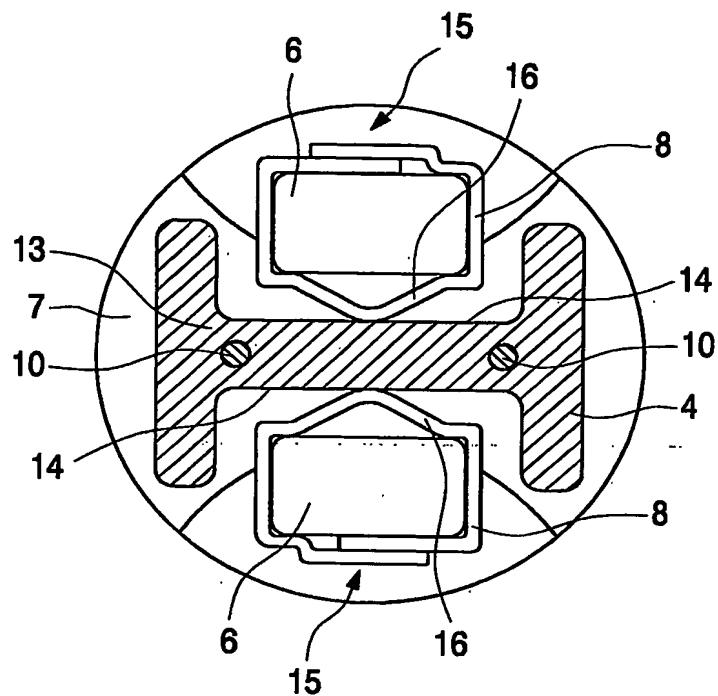


Fig.3

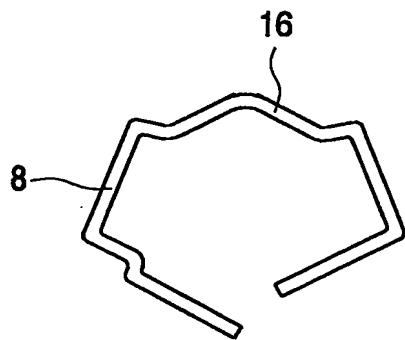


Fig.4

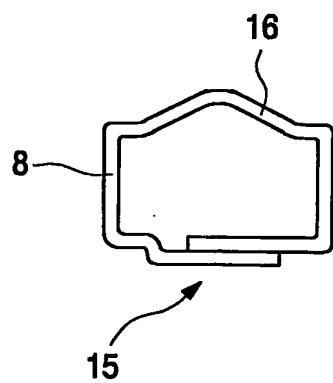


Fig.5

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